

INCH-POUND

MIL-DTL-49092A
29 July 2016
SUPERSEDING
MIL-H-49092(EL)
30 April 1976

DETAIL SPECIFICATION

HEADSET-MICROPHONE H-325()/TTC

Inactive for New Design after 30 March 1999

This specification is approved for use by all
Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 This specification covers one type of single earphone headset with a noise cancelling dynamic microphone; designated as Headset-Microphone H-325()/TTC. (See 6.1).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3.1 and 4.1 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATION

- | | |
|------------------|---|
| MIL-DTL-14072 | - Finishes for Ground Based Electronic Equipment |
| MIL-PRF-25670/5 | - Earphone Element, 1000 OHM Ground Level, Water-Immersible,
M25670/5-01 |
| MIL-PRF-26542/10 | - Microphone Assembly, M-138/G |

DEPARTMENT OF DEFENSE STANDARDS

- | | |
|-----------------|-------------------------------------|
| MIL-STD-202-201 | - Method 201, Vibration |
| MIL-STD-202-302 | - Method 302, Insulation Resistance |

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any data that may improve this document should be sent to: DLA-CC, DLA Land and Maritime, ATTN: VAI, P.O. Box 3990, Columbus, Ohio 43218-3990 or emailed to sound@dsccl.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

AMSC N/A

FSC 5965



- | | |
|---------------|---|
| MIL-STD-252 | - Classification of Visual and Mechanical Defects for Equipment, Electronic, Wired, and Other Devices |
| MIL-STD-810 | - Environmental Engineering Considerations and Laboratory Tests |
| MIL-STD-13231 | - Marking of Electronic Items |

DEPARTMENT OF DEFENSE HANDBOOK

- | | |
|--------------|---|
| MIL-HDBK-454 | - General Guidelines for Electronic Equipment |
|--------------|---|

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DRAWINGS

ARMY (CAGE 80063)

- | | |
|-------------|--|
| SM-B-317264 | Head Set-Microphone H-325()/TTC |
| SC-D-621083 | Microphone and Earphone Test Chamber |
| SM-D-938110 | Headset-Microphone H-325/ TTC Assembly |
| SK-N-864 | Simulated Gun Blast Producing Equipments |

(Users who require copies of these document(s), in connection with an open solicitation or contract award, are first directed to DIBBS and cFolders. If the user has obtained a document, drawing, or publication and has a technical issue/problem, a resolution or new copy may be obtained from the procuring activity as directed by the contracting officer. Or, an email may be sent to dsc.cddwgs@dla.mil. The Requestor must justify their requirement, by providing all of the following information:

- * Contract or Solicitation number.
- * Material Number(s) [NSN's].
- * Company Name.
- * Company Address & CAGE.
- * "Attention to" contact information [Originator name/telephone-extension/email].

2.3 Non-Government publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal should apply.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- | | |
|------------|--|
| ANSI S1.15 | - Measurement Microphone - Part 2: Primary Method for Pressure Calibration of Laboratory Standard Microphones by the Reciprocity Technique |
| ANSI S3.7 | - Coupler Calibration of Earphones |

(Copies of these documents are available on-line at <http://www.ansi.org>.)

IEEE Operations Center

- | | |
|-----------|---|
| IEEE 269A | Methods for Measuring Transmission Performance of Analog and Digital Telephone Sets, Handsets, and Headsets Amendment 1 |
|-----------|---|

(Copies of these documents are available online at <http://www.corporate-communication@ieee.org>)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First Article. When specified in the contract or purchase order, the contractor shall furnish sample units for first article inspection and approval (See 4.3 and 6.2d).

3.2 Construction. The equipment shall be constructed in accordance with the requirements of this Specification, drawing SM-D-938110, and Data List DL-SM-B-317264 (including the requirements for parts, materials and processes thereon) (see 4.4).

3.3 Parts, materials and processes; general. In addition to the requirements of this specification, parts, materials, and processes shall be such as to enable the equipment in which they are used to meet the equipment performance requirements (see 4.4).

3.3.1 Pure tin (see 6.8). The use of pure tin, as an underplate or final finish, is prohibited both internally and externally. Tin content of microphone and microphone assembly components and solder shall not exceed 97 percent, by mass. Tin shall be alloyed with a minimum of 3 percent lead, by mass.

3.3.2 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs

3.4 Finish. The equipment shall be finished in accordance with MIL-DTL-14072 and the equipment drawings (see 4.4).

3.5 Marking. Marking shall conform to MIL-STD-13231 (see 4.4).

3.6 Performance characteristics.

3.6.1 Headset-Microphone H-325()/TTC. (see 4.7.2.1).

3.6.1.1 Pull (see 4.7.2.1.1). The equipment shall withstand 15 pounds of tension between the U-182 connector and the headband without damage.

3.6.1.2 Impedance (4.7.2.1.2). The earphone input impedance measured at the U-182 connector shall be 1,000 ohms \pm 20 percent.

3.6.1.3 Insulation resistance (4.7.2.1.3). The insulation resistance between pins B and D of the connector with the microphone plug disconnected and between pin A and the connector body shall be not less than 100 megohms.

3.6.1.4 Operation (4.7.2.1.4). The equipment shall transmit and receive intelligible voice signals without buzzing, rattling, or other spurious sounds.

3.6.2 Microphone M-138/G conforming to MIL-PRF-26542/10 (see 4.7.2.2).

3.6.2.1 Response (see 4.7.2.2.1). The minimum power output of the microphone shall be -56 dBm (0.63 millivolts across 150 ohms) with a 1,000 Hz sound pressure input of 2.8 Pascal's (Pa). The frequency response in the range of 300 to 3,500 Hz shall fall within the envelope on figure 1.

3.6.2.2 Distortion (see 4.7.2.2.2). Total harmonic distortion shall not exceed 5 percent over the frequency range of 300 to 3,500 Hz.

3.6.2.3 Impedance (see 4.7.2.2.3). The output impedance of the microphone shall be 150 ohms \pm 10 percent at 1,000 Hz.

3.6.2.4 Signal to noise ratio (see 4.7.2.2.4). The ratio of signal to noise shall be not less than 15 dB.

3.6.2.5 Dielectric strength and insulation resistance (4.7.2.2.5). There shall be no evidence of breakdown, when the microphone is subjected to a d.c. voltage of 500 volts applied for 10 seconds between the terminals of the microphone and the external metal parts. The insulation resistance shall be not less than 10 (ten) megohms between these points.

3.6.3 Earphone M25670/5-01 conforming to MIL-PRF-25670/5 (see 4.7.2.3).

3.6.3.1 Response (see 4.7.2.3.1). The acoustic output of the earphone shall be not less than 103 dB above a reference level of 20 micro-Pascal (μ Pa), when 1 milliwatt rms power at 1,000 Hz is applied to the earphone terminals. The response of the earphone between 300 and 1,000 Hz shall not deviate from the 1,000 Hz response by more than +1.5 and -3.5 dB. The response of the earphone between 1,000 and 3,500 Hz shall not deviate from the 1,000 Hz response by more than \pm 5 dB.

3.6.3.2 Distortion (see 4.7.2.3.2). The acoustic output of the earphone shall have no more than 5 percent total harmonic distortion at any frequency in the range of 300 to 3,500 Hz.

3.6.3.3 Overload. The earphone shall show no more than 3 dB change from its original response curve, after being subjected to the test specified in 4.7.2.3.3.

3.6.3.4 Dielectric strength and insulation resistance (see 4.7.2.3.4). The insulation between the earphone terminals and exposed metal parts shall withstand 500 volts d.c. for 10 seconds without breakdown. The insulation resistance shall exceed 10 (ten) megohms between the indicated points.

3.6.3.5 Impedance (see 4.7.2.3.5). The input impedance of the earphone at 1,000 Hz shall be 15 ohms \pm 10 percent.

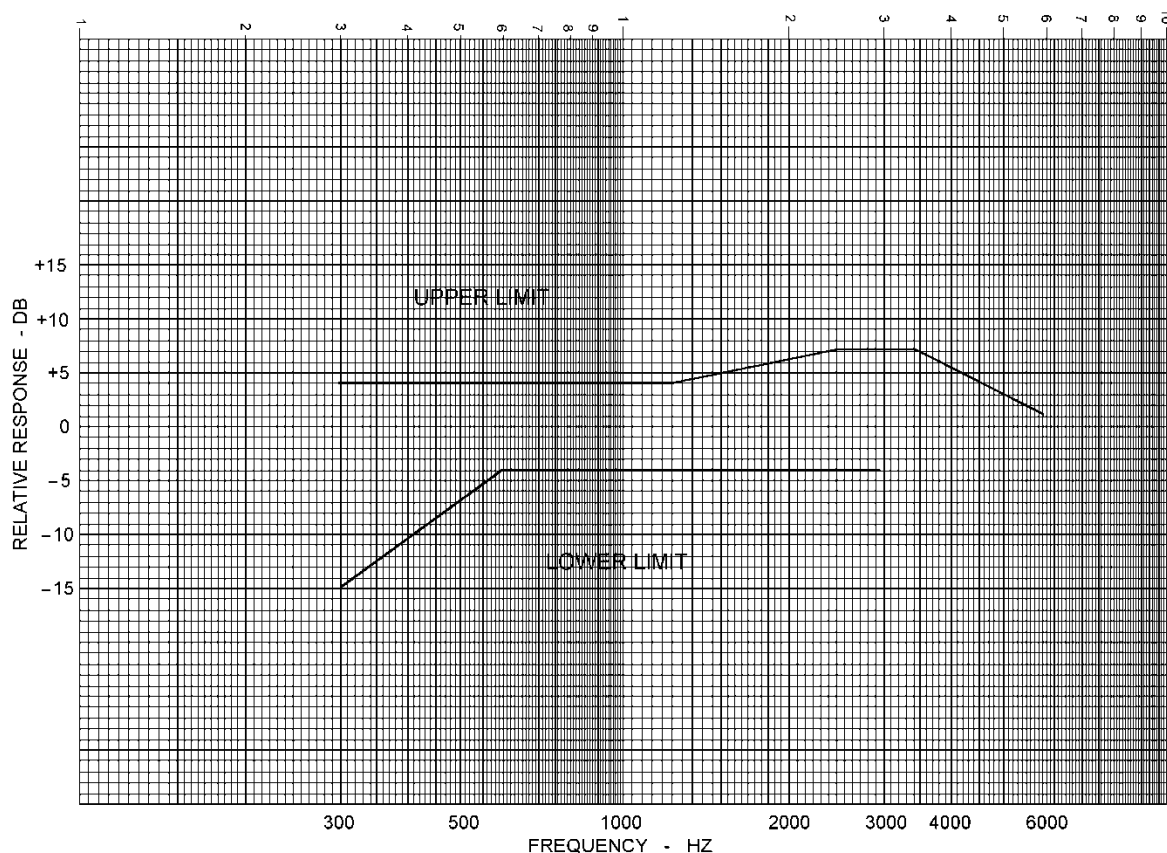


FIGURE 1. Microphone Response Limit Curves.

3.7 Environmental. The equipment shall meet the following environmental conditions.

3.7.1 Temperature.

3.7.1.1 Low. During and after testing as specified in 4.8.1.1, the equipment shall meet the requirements of 3.6.1.2, 3.6.1.3, 3.6.1.4, 3.6.2.1 and 3.6.3.1, with no more than a 3 dB change in response.

3.7.1.2 High. During and after testing as specified in 4.8.1.2, the equipment shall meet the requirements of 3.6.1.2, 3.6.1.3, 3.6.1.4, 3.6.2.1 and 3.6.3.1, with no more than a 3 dB change in response.

3.7.2 Humidity. The equipment shall exhibit no physical damage such as corrosion, rust, blistering, swelling, or deterioration of parts and materials and shall meet the requirements of 3.6.1.2, 3.6.1.3, 3.6.1.4, 3.6.2.1, and 3.6.3.1 during the operating times specified in 4.8.2, with no more than a 3 dB change in response.

3.7.3 Altitude (Elevation) (see 4.8.3). The equipment shall meet the requirements of 3.6.2.1 and 3.6.3.1 with no more than a 5 dB change in frequency response at altitudes up to 15,000 feet above sea level after storage at 50,000 feet above sea level.

3.7.4 Immersion (see 4.8.4). The equipment shall meet the requirements of 3.6.1.2, 3.6.1.3, 3.6.1.4, 3.6.2.1 and 3.6.3.1 following immersion in 3 (three) feet of water for 2 (two) hours.

3.7.5 Blast (see 4.8.5). The equipment shall meet the requirements of 3.6.2.1 and 3.6.3.1 with no more than a 3 dB change in frequency response following 30 (thirty) rounds of blast at a peak of 9.5 pounds per square inch (psi).

3.7.6 Vibration. The equipment shall meet the requirements of 3.6.2.1 and 3.6.3.1 following the tests of 4.8.6.

3.7.7 Shock, drop. The equipment shall meet the requirements of 3.6.1.3, 3.6.1.4, 3.6.2.1, and 3.6.3.1 following the test of 4.8.7.

3.7.8 Bounce, loose cargo. The equipment shall meet the requirements of 3.6.1.3 and 3.6.1.4 following the test of 4.8.8.

3.7.9 Salt fog. After the salt fog test of 4.8.9, the equipment, when examined visually with the aid of a 10-power magnifier, shall show no evidence of degradation, such as flaking, pitting, blistering or loosening of finish or metal surface, or exfoliation (see 6.6) of metal. Electrical operation is not required.

3.8 Interchangeability. Like units, assemblies, subassemblies and replaceable parts should conform to Requirement 7 of MIL-HDBK-454 (See 4.9).

3.9 Workmanship. The equipment should be manufactured and assembled in accordance with Requirement 9 of MIL-HDBK-454 (See 4.6).

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.3) does not include preparation for delivery.
- b. Inspections are covered by subsidiary documents (see 4.4).
- c. Conformance inspection of equipment (see 4.5).

4.2 Inspection conditions. Unless otherwise specified, headsets shall be tested under the following conditions:

- | | |
|-------------|---|
| Temperature | - Room ambient, +15 degrees C (+59 degrees F) to +35 degrees C (+95 degrees F). |
| Pressure | - Normal atmospheric. |
| Humidity | - Room ambient up to 90 percent relative humidity. |

4.3 First article. Unless otherwise specified in the contract or purchase order, the first article inspection shall be performed by the contractor.

4.3.1 First article units. The contractor shall furnish 7 (seven) first article units of the complete Headset-Microphone H-325()/TTC and 4 (four) units each of the microphones and earphones.

4.3.2 First article inspection. The first article inspection shall consist of the inspections specified in subsidiary documents covering the items listed in 4.4, and the inspections specified for Group A, Group B and Group C (see table I, table II and table III respectively). The inspections shall be performed in the following order: 4.4, Group A and Group B for all units; and Group C as specified in table III. After completion of Group C environmental tests, conforming units shall be re-inspected and shall pass all Group A inspections.

4.3.3 First article data. The first article test plan and test report shall be furnished as required in the contract or purchase order.

4.3.4 Failures. One or more failures shall be cause for refusal to grant first article approval.

4.4 Inspections covered by subsidiary documents: The following shall be inspected under the applicable subsidiary document as part of the inspection required by this specification and the inspection requirement specified in the contract or purchase order.

<u>Item</u>	<u>Where required</u>
Construction	3.2
Parts, materials, and processes-general	3.3
Finish	3.4
Marking	3.5

4.5 Conformance inspection. The contractor shall perform the inspection specified in [4.4](#), [4.5.1](#) through [4.5.4](#). This does not relieve the contractor of his responsibility for performing any additional inspection, which is necessary to control the quality of the product and to assure compliance with all specification requirements.

4.5.1 Group A inspection. Each unit on contract or purchase order shall be inspected for conformance to the inspections specified in [table I](#). Discrete lots shall be formed from units that pass this inspection. Factors of lot composition not defined herein or in the contract or purchase order, shall be in accordance with 'Accept on Zero' (Defects). For general inspection, a sample of parts shall be randomly selected in accordance with [table I](#).

4.5.1.1 Sampling plan. For Accept on Zero and general inspection, a sample of parts shall be randomly selected in accordance with [table IA](#).

4.5.1.2 Order of inspection within Group A. Group A inspection shall be performed in any order satisfactory to the Government except that the operational inspection shall be last.

4.5.2 Group B inspection. Group B inspection shall normally be performed on inspection lots that have passed Group A inspection and on samples selected from units that have been subjected to and met the Group A inspection. These inspections shall conform to [table II](#).

4.5.2.1 Group B Sampling plan. For Accept on zero and general inspection, a sample of parts shall be randomly selected in accordance with [table IA](#).

TABLE I. Group A inspection.

Inspection	Req Para	Insp Para
Visual & Mechanical	3.9	4.6
Headset-microphone		
Impedance	3.6.1.2	4.7.2.1.2
Ins Resistance	3.6.1.3	4.7.2.1.3
Operational	3.6.1.4	4.7.2.1.4
Microphone		
Impedance	3.6.2.3	4.7.2.2.3
Diel and Ins Res	3.6.2.5	4.7.2.2.5
Earphone		
Diel and Ins Res	3.6.3.4	4.7.2.3.4
Impedance	3.6.3.5	4.7.2.3.5

TABLE IA. Sampling plans for Group A and Group B.

Lot size	Sample size Group A	Sample size Group B
2 to 13	1/	3
14 to 25	13	3
26 to 50	13	5
51 to 90	13	6
91 to 150	13	7
151 to 280	20	10
281 to 500	29	11
501 to 1200	34	15
1201 to 3200	42	18

1/ Indicates entire lot must be inspected.

4.5.2.2 Order of inspection within Group B. Group B inspection shall be performed in an order satisfactory to the Government.

TABLE II. Group B inspection.

Inspection	Req Para	Insp Para
Headset-microphone		
Pull	3.6.1.1	4.7.2.1.1
Interchangeability	3.8	4.9
Microphone		
Response	3.6.2.1	4.7.2.2.1
Distortion	3.6.2.2	4.7.2.2.2
Earphone		
Response	3.6.3.1	4.7.2.3.1
Distortion	3.6.3.2	4.7.2.3.2

4.5.3 Group C inspection. Group C inspection shall be performed on units that have passed Group A and Group B inspection. These inspections shall conform to [table III](#). Samples shall be selected in accordance with [4.5.3.1](#).

4.5.3.1 Sampling for Group C inspection. For Subgroup I, two samples each of the microphone, earphone and headset-microphone shall be selected at random from each 500 units or fraction thereof produced. For Subgroup II, five samples of the headset-microphone shall be selected at random from each 1,000 units or fraction thereof produced. High temperature, low temperature, humidity, shock, and bounce tests shall be performed, with one test per sample. In addition, two samples each of the microphone and earphone shall be selected from each 1,000 units or fraction thereof produced. One sample each shall be subjected to the altitude test and the other to the vibration test. For Subgroup III, one sample each of the microphone and earphone (blast test) and one sample headset-microphone (salt fog) shall be selected at random from each 2,000 units or fraction thereof produced. The first samples of each test subgroup shall be selected from the first production lot.

4.5.3.2 Group C failures. Actions required relative to Group C failures shall be as specified in the contract or purchase order.

4.5.4 Reinspection of conforming group C sample units. Unless otherwise specified, sample units which have been subjected to and passed Group C inspection may be accepted on contract provided all damage is repaired and the sample units are re-subjected to and pass Group A and B inspection.

TABLE III. Group C inspection.

Inspection	Req Para	Insp Para
Subgroup I		
Signal to Noise	3.6.2.4	4.7.2.2.4
Overload	3.6.3.3	4.7.2.3.3
Immersion	3.7.4	4.8.4
Subgroup II		
Temperature	3.7.1	4.8.1
Humidity	3.7.2	4.8.2
Altitude	3.7.3	4.8.3
Vibration	3.7.6	4.8.6
Shock, drop	3.7.7	4.8.7
Bounce	3.7.8	4.8.8
Subgroup III		
Blast	3.7.5	4.8.5
Salt fog	3.7.9	4.8.9

4.6 Visual and mechanical. The equipment should be examined for compliance with 3.9 and for the defects listed in MIL-STD-252.

4.7 Performance requirements.

4.7.1 Test equipment.

- Voltmeter. Ballantine model 300 Voltmeter or equal.
- Sound source. Artificial mouth per IEEE 269A or equal.
- Audio oscillator. General Radio Company type 1304-B or equal.
- Standard microphone. Shall be a Laboratory-Type microphone in accordance with ANSI S1.15, calibrated by the reciprocity method.
- Sound pressure calibration. Mount the standard microphone concentrically and flush in a baffle having the same shape as the cap of the M-138/G housing. Mount the baffle and standard microphone coaxially and 1/4 inch away from the sound source. Adjust and record the audio oscillator input to the sound source to obtain 2.8 Pascal's (Pa) (as measured at the standard microphone output) at the frequencies of 300, 400, 500, 600, 800, 1,000, 1,200, 1,500, 2000, 2,500, 3,000 and 3,500 Hz.
- Distortion. Hewlett Packard Distortion Analyzer model 330C or equal.

4.7.2 Methods of inspection.

4.7.2.1 Headset-microphone (assembled).

4.7.2.1.1 Pull. Attach the headband of the assembly to a fixed object and suspend a fifteen-pound weight from the connector. After 10 minutes, remove the weight and visually examine the assembly for damage to connections, staycord and molded parts. The assembly shall be subjected to the operation test and meet the requirement of 3.6.1.1.

4.7.2.1.2 Impedance. Apply a 1.0 volt, 1,000 Hz, Sinusoidal signal through a decade resistance box (initially set to 1,000 ohms) in series with pins A and B of the connector. Vary the decade resistance until the voltage across the connector pins, as read on a Voltmeter, is equal to the voltage across the decade resistance. The decade resistance reading shall meet the requirement of 3.6.1.2.

4.7.2.1.3 Insulation resistance. The assembly shall be tested in accordance with test condition B, of MIL-STD-202-302 to meet the requirements of 3.6.1.3. There shall be no evidence of arcing or insulation breakdown during the test.

4.7.2.1.4 Operation. Connect the headset-microphone assembly under test through a suitable audio amplifier, having essentially flat response in the audio frequency range and which provides side tone approximately 20 dB below the talk level, to another headset-microphone assembly. Conduct a two-way conversation between the head-microphone assemblies and determine compliance with 3.6.1.4.

4.7.2.2 Microphone M-138/G.

4.7.2.2.1 Response. The microphone under test, in its housing, shall be mounted coaxially and 1/4 inch from the calibrated sound source. Terminate the microphone under test with a 150-ohm non-inductive resistor. Apply a constant sound pressure level of 2.8 Pascal's (Pa) at the frequencies cited in 4.7.1.e and measure the output voltage with a Voltmeter to determine compliance with 3.6.2.1.

4.7.2.2.2 Distortion. Repeat the tests of 4.7.2.2.1 except that the constant sound pressure level shall be 125 dB above a reference level of 20 micro-Pascal (μ Pa). Measure total harmonic distortion for compliance with 3.6.2.2.

4.7.2.2.3 Impedance. Repeat the test of 4.7.2.2.1, except that the sound pressure level at 1,000 Hz shall be adjusted to that level which produces .001 volts at the open circuit output terminals of the microphone under test. Holding the sound pressure level constant, connect a decade resistance box to the microphone terminals and adjust its value until the output voltage is .0005 volts. The decade resistance setting shall comply with 3.6.2.3.

4.7.2.2.4 Signal to noise ratio.

- a. Tests shall be performed in a suitable acoustical environment similar to that shown in Drawing SC-D-621083.
- b. The Noise source shall consist of nine separately generated audio frequencies as shown in table IV with their relative sound pressure levels. The Noise source shall be located as far away from the microphone as is practicable and on a line coincident with the central plane of the microphone. By means of a calibrated standard microphone, adjust the Noise output for a sound pressure of 115 dB above a reference level of 20 micro-Pascal (μ Pa) as measured at the standard microphone.
- c. The signal source shall consist of seven separately generated audio frequencies as shown in table V with their relative sound pressure levels. The signal source shall be adjusted to supply a sound pressure level of 115 dB above a reference level of 20 micro-Pascal (μ Pa) to a standard microphone positioned coaxially one quarter inch away from the sound source.
- d. With the microphone under test positioned in place of the standard microphone 1/4 (one quarter inch) from the signal source, activate the signal source and measure the output voltage across a 150 ohm non-inductive resistor with a Voltmeter. Shut off the signal source, activate the Noise source and measure the microphone output voltage. The ration of the microphone output with signal input to the microphone output with Noise input, in dB, shall meet the requirement of 3.6.2.4.

4.7.2.2.5 Dielectric strength and insulation resistance. The microphone shall be tested in accordance with Test Condition B of MIL-STD-202-302 and meet the requirements of 3.6.2.5. There shall be no evidence of arcing or insulation breakdown during the test.

TABLE IV. Microphone Noise Spectrum.

Frequency in Hz	Sound Pressure in DB Relative to Sound Pressure at 130 Hz
40	0
70	0
130	0
300	-5
600	-0
1,000	-13
2,000	-17
3,000	-19
4,000	-21

TABLE V. Signal Spectrum.

Frequency in Hz	Sound Pressure in DB Relative to Sound Pressure at 130 Hz
130	0
300	+7
600	+8
1,000	+5
2,000	-3
3,000	-7
4,000	-9

4.7.2.3 Earphone M25670/5-01.

4.7.2.3.1 Response. Constant-available-power frequency response measurements shall be made at 300, 400, 500, 700, 1,000, 1,500, 2,000, 2,500, 3,000 and 3,500 Hz. Response measurements shall be made in accordance with ANSI S3.7 in a Type-1 Earphone Coupler except that the coupling weight shall be one kilogram. Determine compliance with [3.6.3.1](#).

4.7.2.3.2 Distortion. Component harmonic distortion shall be measured at the frequencies cited in [4.7.2.3.1](#), in accordance with the procedures of ANSI S3.7, to meet the requirements of [3.6.3.2](#).

4.7.2.3.3 Overload. The earphone shall be operated at a 500 milliwatt level, 1,000 Hz, for a period of 8 hours. Repeat the response tests in accordance with [3.6.3.1](#) at the 1 milliwatt level, for compliance with [3.6.3.3](#).

4.7.2.3.4 Dielectric strength and insulation resistance. The earphone shall be tested in accordance with Test condition B of MIL-STD-202-302 and meet the requirement of [3.6.3.4](#). There shall be no evidence of arcing or insulation breakdown during the test.

4.7.2.3.5 Impedance. Using the procedures described in ANSI S3.7, measure the impedance at 1,000 Hz for compliance with [3.6.3.5](#).

4.8 Environmental conditions.4.8.1 Temperature (see [3.7.1](#)).

4.8.1.1 Low. The equipment shall be tested in accordance with Method 502.1, Procedure I of MIL-STD-810. The storage temperature shall be (minus) -80 degrees F, maintained for four hours, and the operating temperature shall be (minus) -40 degrees F. Prior to, during, and following the test, the equipment shall meet the full specification performance of [3.6.1.2](#) and [3.6.1.3](#). Prior to and following the test, the equipment shall meet the requirements of [3.6.1.4](#) and the microphone and earphone shall meet the requirements of [3.6.2.1](#) and [3.6.3.1](#), with no more than 3 dB change in response.

4.8.1.2 High. The equipment shall be tested in accordance with Method 501.1, Procedure 1 of MIL-STD-810. The storage temperature shall be (plus) +160 degrees F, maintained for two hours and the operating temperature shall be +150 degrees F. Prior to, during, and following the test, the equipment shall meet the full specification performance of 3.6.1.2 and 3.6.1.3. Prior to and following the test, the equipment shall meet the requirement of 3.6.1.4 and the microphone and earphone shall meet the requirements of 3.6.2.1 and 3.6.3.1, with no more than 3 dB change in response.

4.8.2 Humidity. The equipment shall be tested in accordance with Method 507.1, Procedure II of MIL-STD-810, with measurements made during the last five-hour period of each cycle. Prior to, during, and following the test, the equipment shall meet the full specification performance of 3.6.1.2 and 3.6.1.3. Prior to and following the test, the equipment shall meet the requirement of 3.6.1.4 and the microphone and earphone shall meet the requirements of 3.6.2.1 with no more than 3 dB change in response (see 3.7.2).

4.8.3 Altitude. The microphone and earphone shall be tested in accordance with Method 500.1, Procedure I of MIL-STD-810 except that the pressure in Step 2 shall first be lowered to simulate 50,000 feet above sea level. Prior to, during, and following the test the elements shall meet the requirements of 3.6.2.1 and 3.6.3.1 with no more than 5 dB change in response (see 3.7.3).

4.8.4 Immersion. The equipment shall be immersed in fresh water at ambient temperature to a depth of three feet. After a 2 (two) hour immersion, remove the equipment and shake to remove excess water. Prior to and following the test, the equipment shall meet the full specification performance of 3.6.1.2, 3.6.1.3, 3.6.1.4, 3.6.2.1, and 3.6.3.1 (see 3.7.4).

4.8.5 Blast. Mount the microphone or earphone element under test on the carriage of the Simulated Gun Blast Producing Equipment in accordance with U.S. Army drawing SK-N-864 with the front edge of the element in the test plane and with its axis coincident with that of the explosion chamber. Subject the element to 30 rounds of blast at a peak pressure of 9.5 psi. Prior to and following the test, the element shall meet the requirements of 3.6.2.1 and 3.6.3.1 with no more than 3 dB change in response (see 3.7.5).

4.8.6 Vibration. The microphone and earphone elements shall be tested in accordance with MIL-STD-202-201. Mounting of the elements in the test jig shall simulate the mounting of the element in the headset-microphone assembly. Prior to and following the test, the element shall meet the full specification requirement of 3.6.2.1 and 3.6.3.1 (See 3.7.6).

4.8.7 Shock, drop. The headset-microphone assembly shall be dropped twelve times from a height of six feet onto a concrete floor. Prior to and following the test, the equipment shall meet the requirements of 3.6.1.3, 3.6.1.4, 3.6.2.1 and 3.6.3.1, with no more than 3 dB change in response. Mechanical damage shall be superficial only (See 3.7.7).

4.8.8 Bounce, loose cargo. The equipment shall be tested in accordance with Method 514.2, Procedure XI, Part 2 of MIL-STD-810 except that the equipment shall lie at random on the test table and no reorientation shall occur at the half hour periods. Prior to and following the test, the equipment shall meet the requirements of 3.6.1.3 and 3.6.1.4 (See 3.7.8).

4.8.9 Salt fog. The equipment shall be subjected to the salt fog test specified in Method 509.1, Procedure I of MIL-STD-810. No corrosion products shall be deposited on the test item by the facility. Inability of the equipment to meet the requirements of 3.7.9 shall constitute failure of this test.

4.9 Inspection for dimensional interchangeability. The dimensions listed below should be gaged or measured to determine conformance to the physical interchangeability requirement of 3.8. When listed dimension is not within specified or design limits, it should be considered a defect.

- a. External and internal dimensions of cases, covers and insertable assemblies, when such dimensions affect mating of parts.
- b. Dimensions of cavities, when such dimensions affect insertion of items.
- c. Location of hinges and fasteners on separable parts or assemblies which must mate, such as cases, covers, and mountings.
- d. Location of connectors, locking pins, fasteners, slides and mountings which receive mating parts of plug-in assemblies, and major units; and location of the mating parts on the plug-in assembly or major unit.
- e. Size and form of special threads.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. Headset-Microphone H-325()/TTC utilizes a single 1,000 ohm earphone (M25670/5-01, with matching transformer), a 150 ohm noise cancelling dynamic microphone (M-138/G) and a six foot retractile cord terminating in a 5 pin audio connector (U-182/U). It is intended for use in automatic switchboards (AN/TTC-38) and with Radio Wire Integration units (C-6709).

6.2 Ordering Data. Procurement documents should specify the following:

- a. Title, number and date of this specification and any amendment thereto.
- b. Packaging requirements (see Section 5).
- c. Whether first article inspection is required (see 3.1).
- d. The number of First Article samples required (See 4.3.1).

6.3 First article inspection. Information pertaining to first article inspection of products covered by this specification should be obtained from the procuring activity for the specific contracts involved.

6.4 Nomenclature. The parentheses in the nomenclature will be deleted or replaced by a letter identifying the particular design; for example: H-325W/TTC. The contractor should apply for nomenclature in accordance with the applicable clause in the contract.

6.5 Verification inspection. Verification by the Government will be limited to the amount deemed necessary to determine compliance with the contract and will be limited in severity to the definitive quality assurance provisions established in this specification and the contract. The amount of verification inspection by the Government will be adjusted to make maximum utilization of the contractor's quality control system and the quality history of the product.

6.6 Environmental. Environmental pollution prevention measures are contained in the packaging requirements, as specified in the contract or purchase order. Refer to material specifications or procuring activity for recommended disposability methods.

6.7 Exfoliation. Exfoliation is corrosion along the grain boundaries of the metal resulting in the peeling or separating, or both, of successive layers of the metal. The appearance resembles loose book pages or onion skin peeling.

6.8 Tin whisker growth (see 3.3.1). The use of alloys with tin content greater than 97 percent, by mass, may exhibit tin whisker growth problems after manufacture. Tin whiskers may occur anytime from a day to years after manufacture and can develop under typical operating conditions, on products that use such materials. Conformal coatings applied over top of a whisker-prone surface will not prevent the formation of tin whiskers. Alloys of 3 percent lead, by mass, have shown to inhibit the growth of tin whiskers. For additional information on this matter, refer to ASTM B545 (Standard Specification for Electrodeposited Coatings of Tin).

6.9 Subject term (key word) listing.

Audio
Earphone
Frequency
Headband
Response

6.10 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodian:
Army – CR
DLA - CC

Preparing Activity:
DLA – CC

Project No. 5965-2016-013

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>